RISK MANGEMENT IN U.S. COTTON PRODUCTION

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The 'Uncertainty' of Cotton Risk Management

- Planting Flexibility
- New and rapidly evolving insurance options
- Have to consider the interaction of risk management tools
- Low prices and poor market outlook
- Policy uncertainty

Recent Legislative History of U.S. Crop Insurance

- ***Crop Insurance Improvement Act (1980)***
  - **Introduced a premium subsidy & private sector delivery. Greatly expanded insurable crops and areas.**

- ***Food, Agriculture, Conservation, and Trade Act (1990)***
  - **Emphasized rate increases and actions to control fraud.**
  - **Mandated to test market new products.**

- ***Crop Insurance Reform Act (1994)***
  - **Created linked catastrophic coverage to reduce disaster assistance & increased premium subsidies.**

- ***Agricultural Risk Protection Act (2000)***
  - **Provided for $8 billion additional crop insurance spending over a 5 year period and mandated USDA becoming more of a regulator rather than carry out its own development program.**

| Table 1. ARPA Subsidy Changes			
Yield/Price Percent Coverage	Old APH Subsidy Percentage	Old CRC Subsidy Percentage	ARPA Percentage
50/100	55	42	67
55/100	46	35	64
65/100	42	32	59
75/100	24	18	55
85/100	13	10	38

2000 PROPOSED NONIRRIGATED COTTON RATES

PERCENT CHANGE
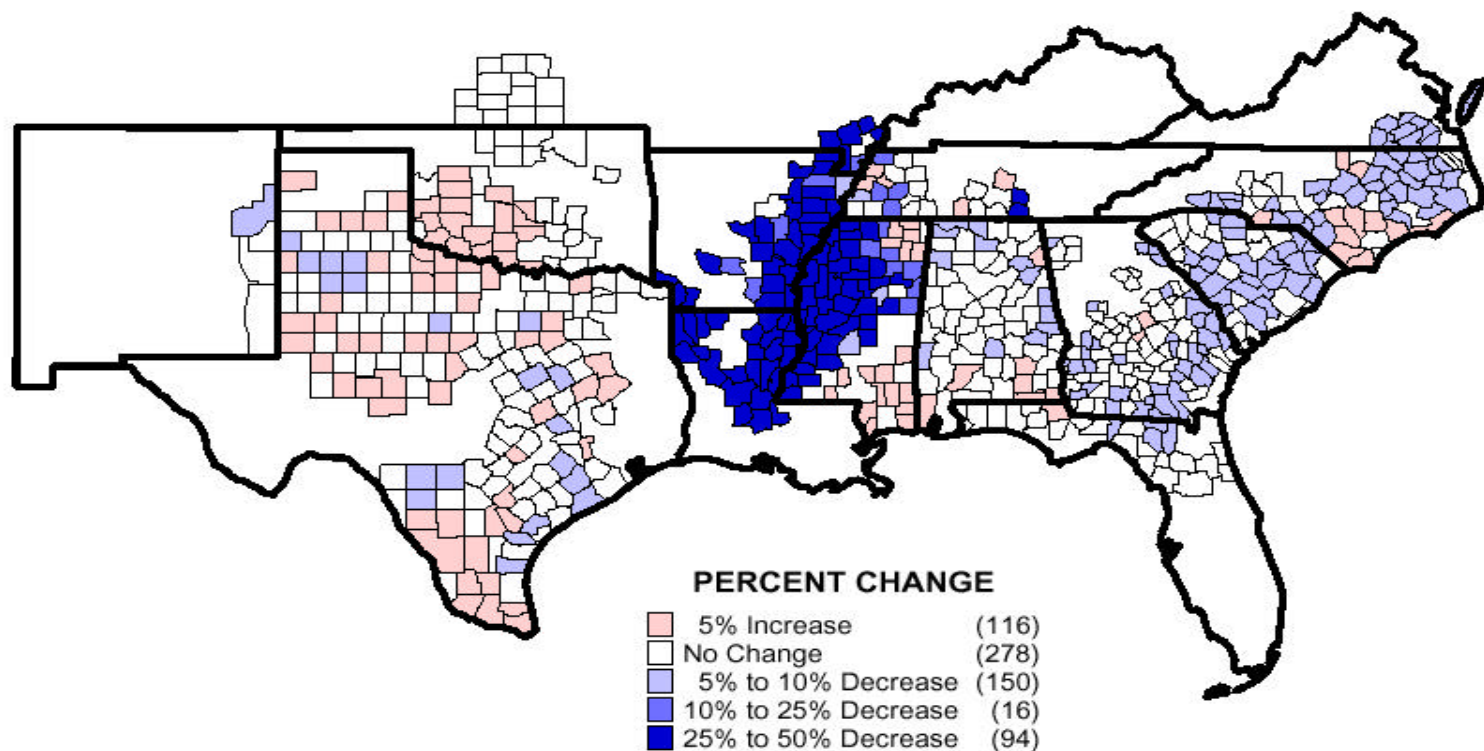
| Table 2. Washington County, Mississippi Cotton Farmer's Premium Cost-Comparison for MPCI assuming a 750 Pound Yield and 63 Cent Price			
Level	Coverage	1998	2001
50%	$236.00	$10.74	$4.00
55%	$260.00	$15.43	$5.22
60%	$284.00	$21.69	$6.35
65%	$307.00	$25.09	$8.95
70%	$331.00	$38.29	$11.70
75%	$355.00	$58.34	$17.43
80%	$378.00	N/A	$27.26

Percent Cotton Acreage Insured, All plans
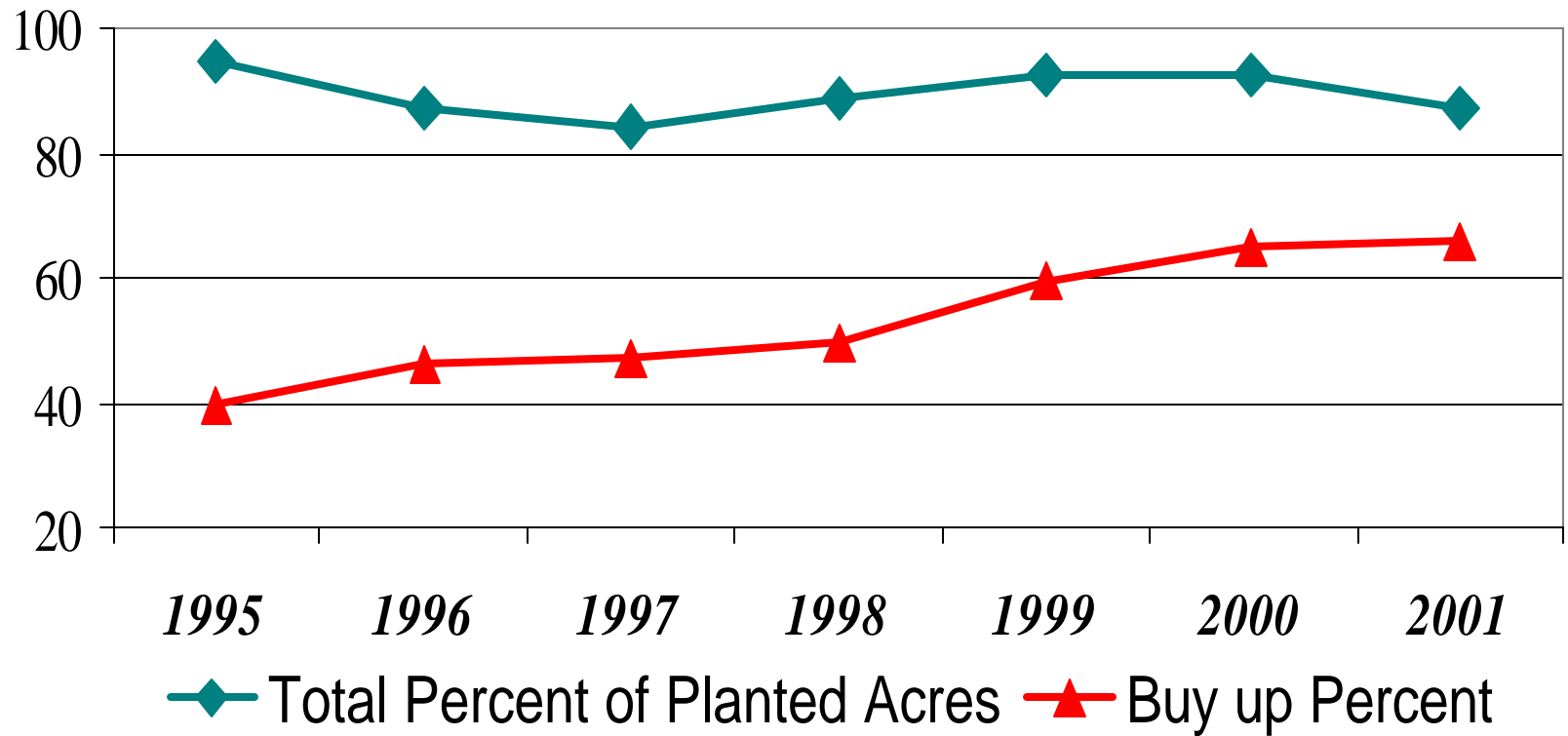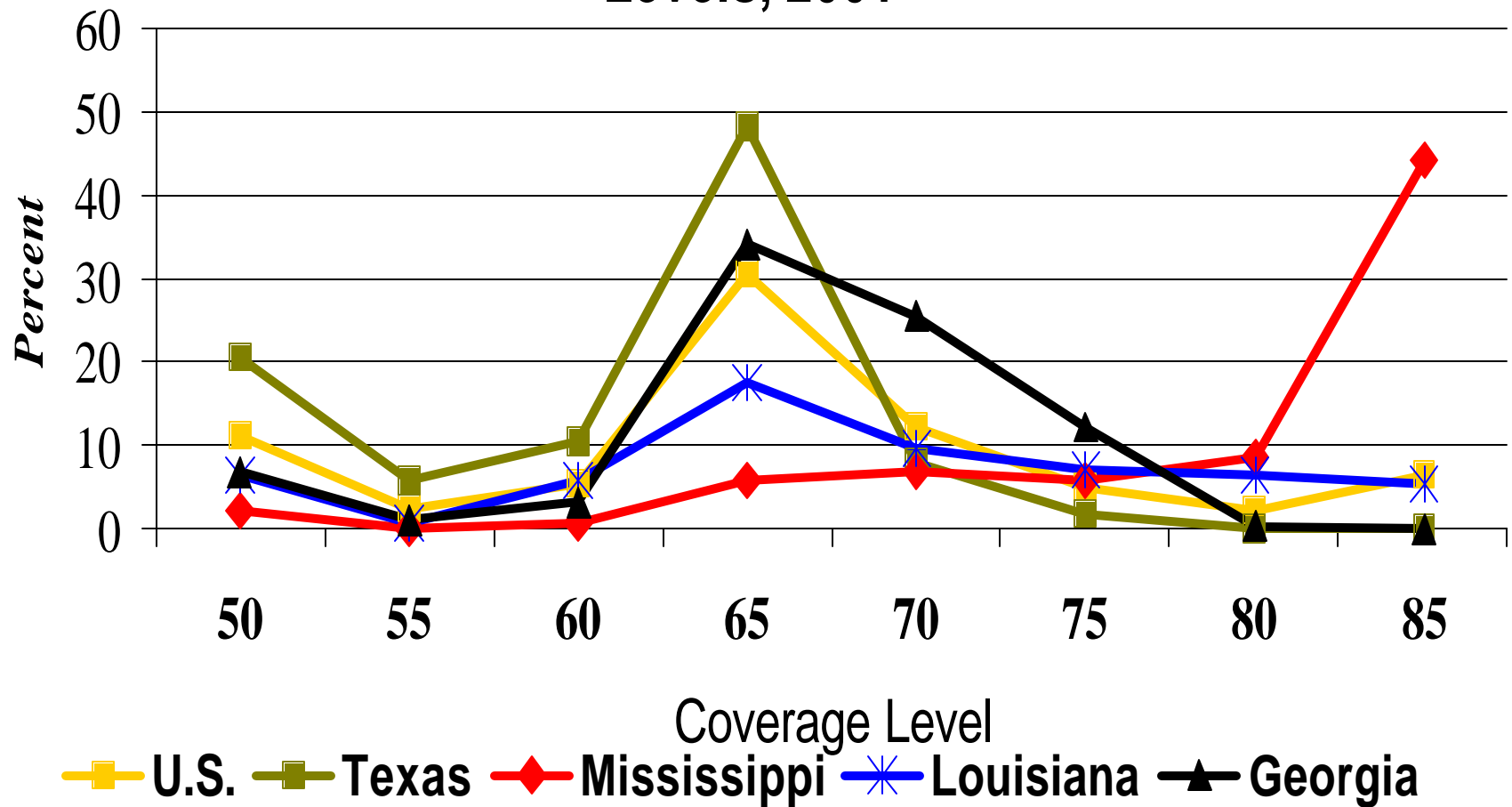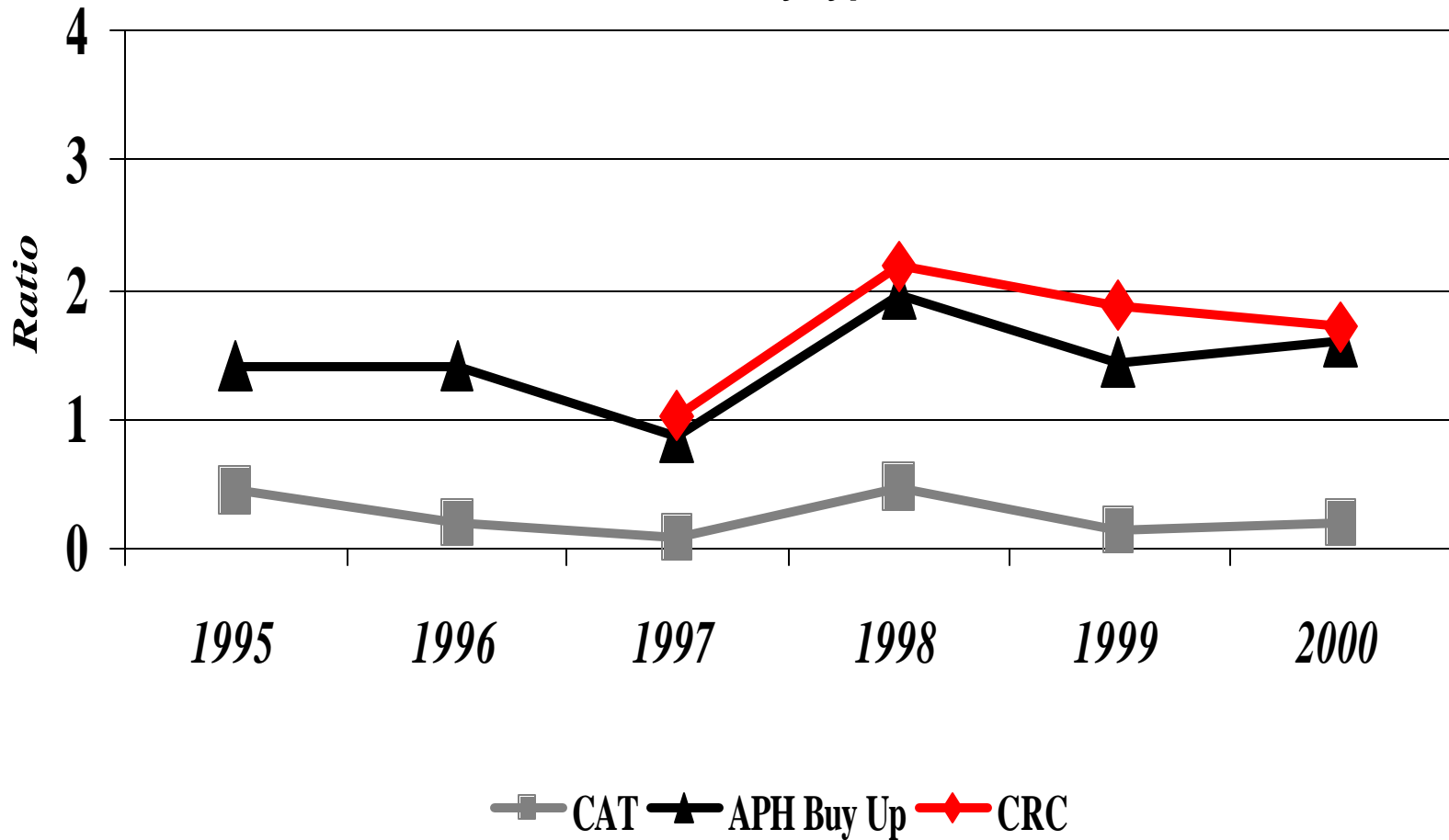
Cotton Participation in Buy-up Coverage by State
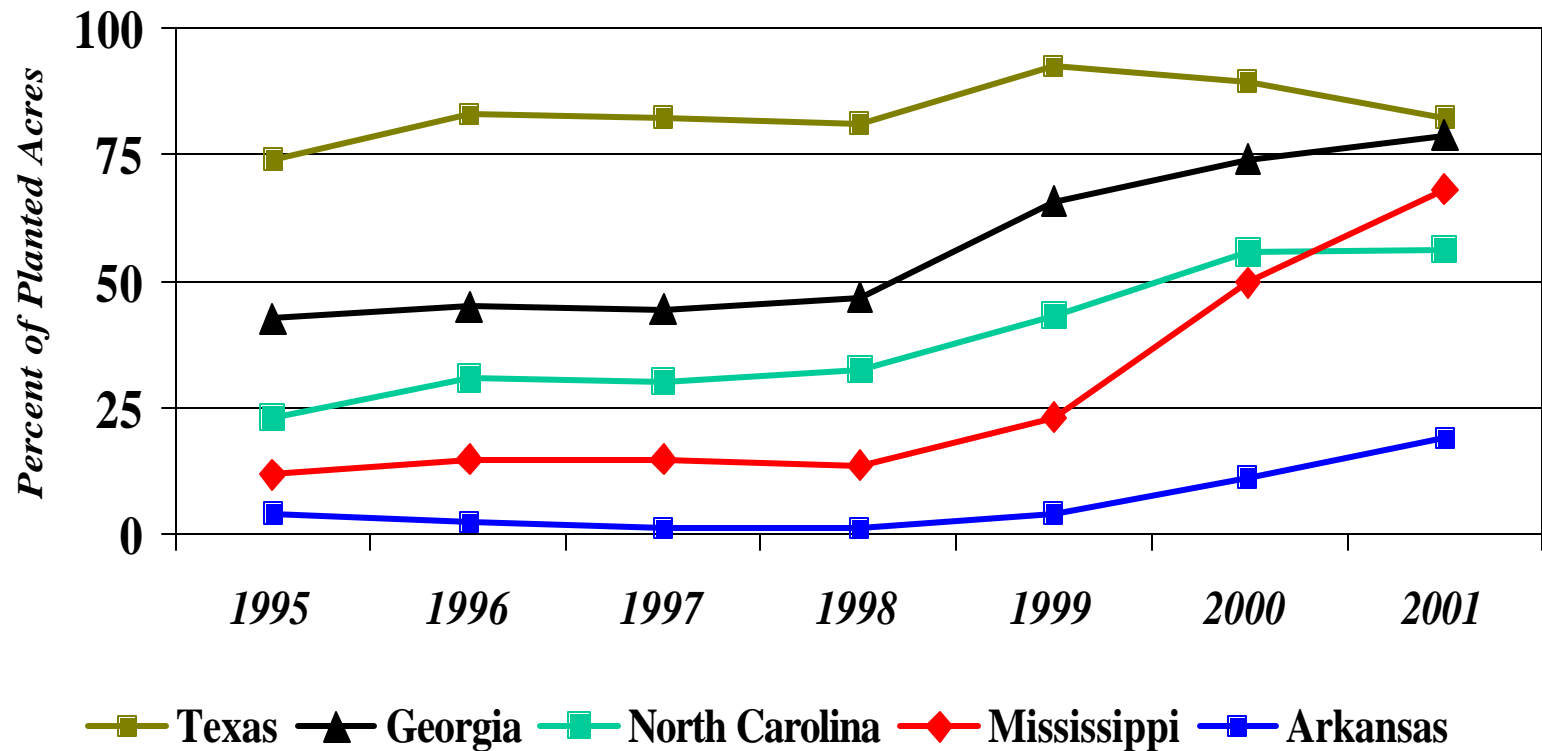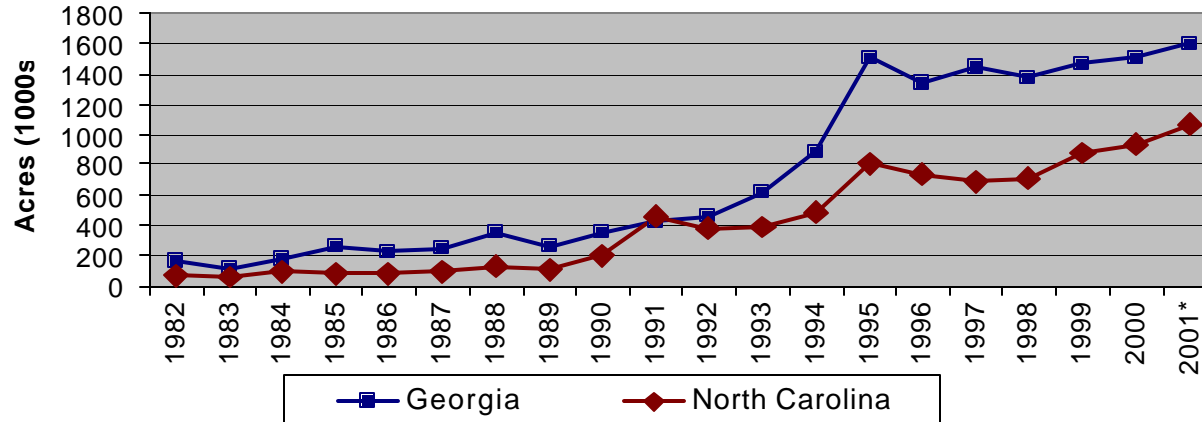
Aggregate Cotton Acreage by Insurance Type
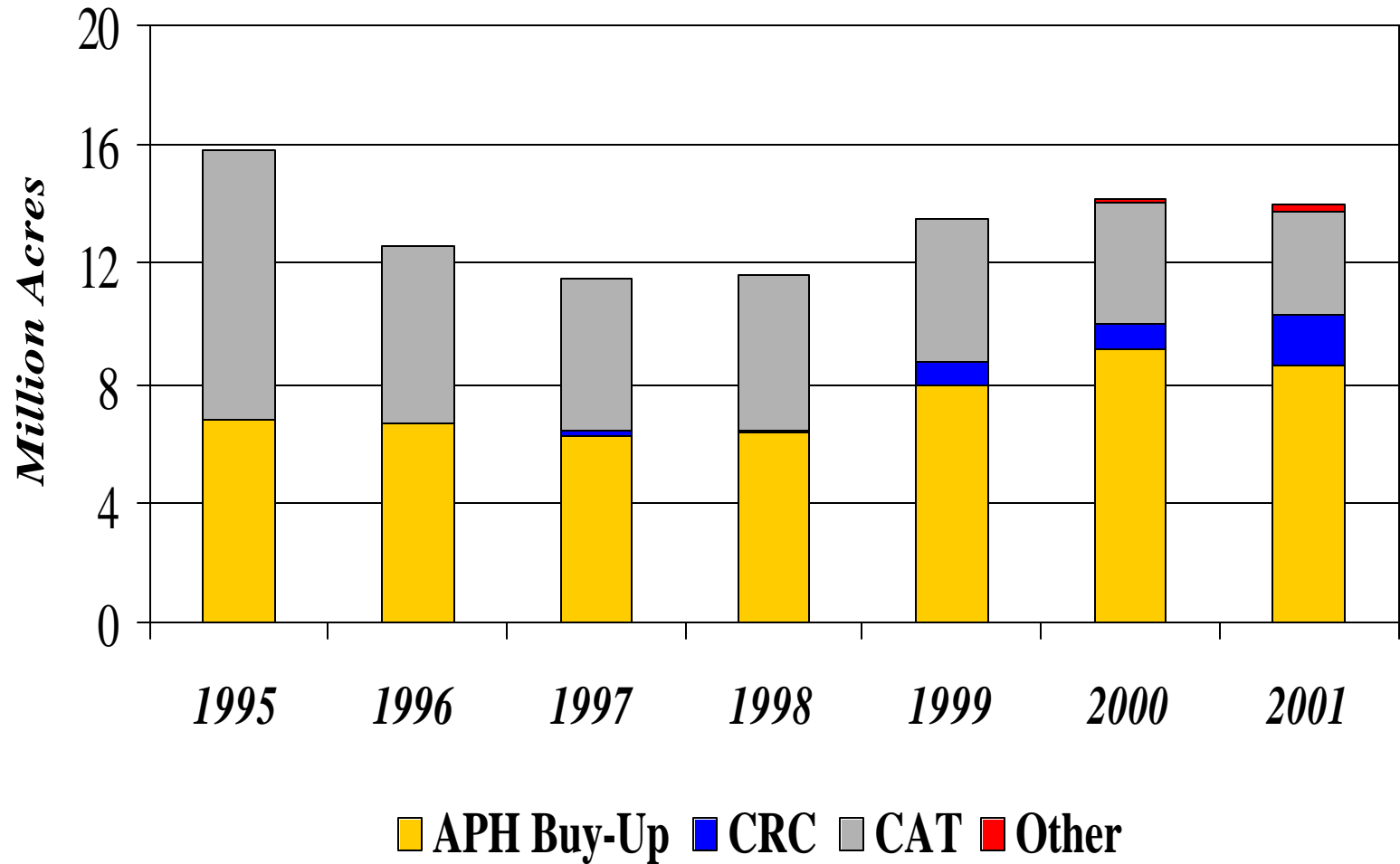
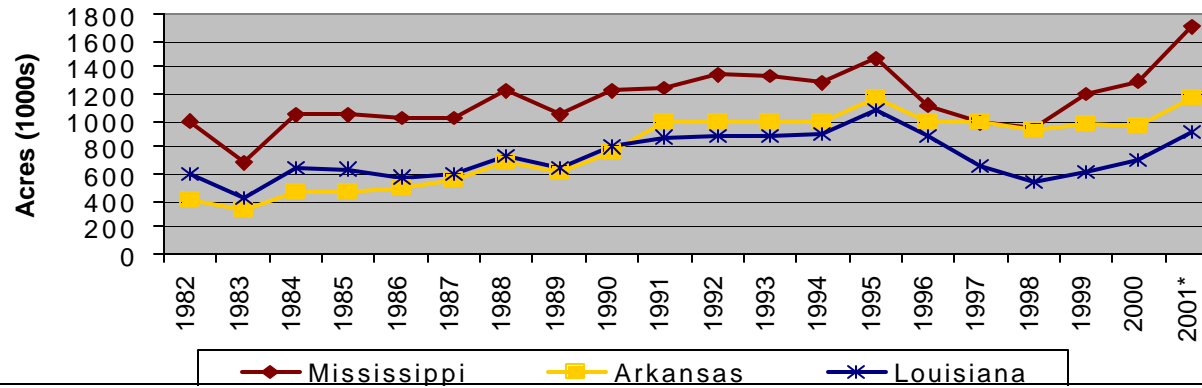**Proportion of Insured Acres at Various Coverage Levels, 2001**

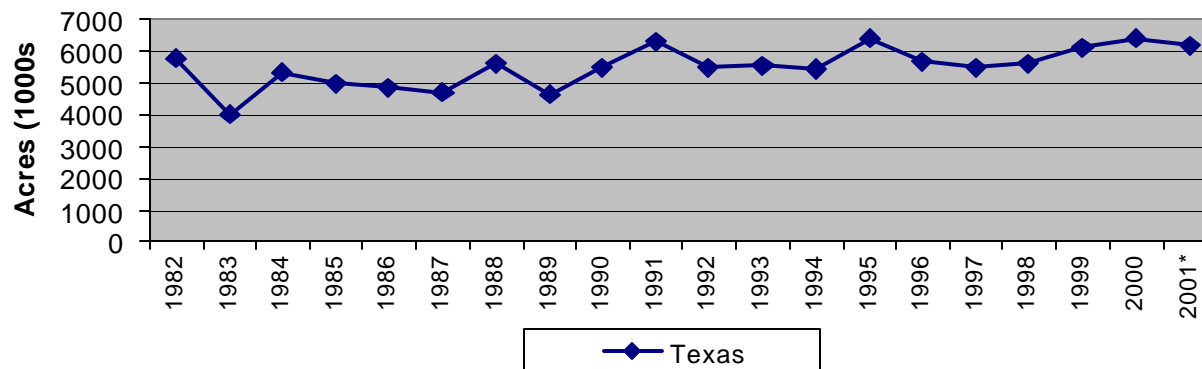U.S. Cotton Loss Ratio by type of Insurance

Cotton Acreage 1982-2001 (Southeastern States)

Cotton Acreage 1982-2001 (Mid-south States)

Cotton Acreage 1981-2001
Texas

Crop Insurance Benefits & Costs

$$\text{Indemnity} = \frac{\text{Price}}{\text{Guarantee}} \;X\; \left[\frac{\text{Coverage}}{\text{Level}} \;X\; \frac{\text{APH}}{\text{Yield}} - \frac{\text{Actual}}{\text{Yield}} \right]$$

$$\text{if} \; \frac{\text{Coverage}}{\text{Level}} \;X\; \frac{\text{APH}}{\text{Yield}} > \frac{\text{Actual}}{\text{Yield}}$$
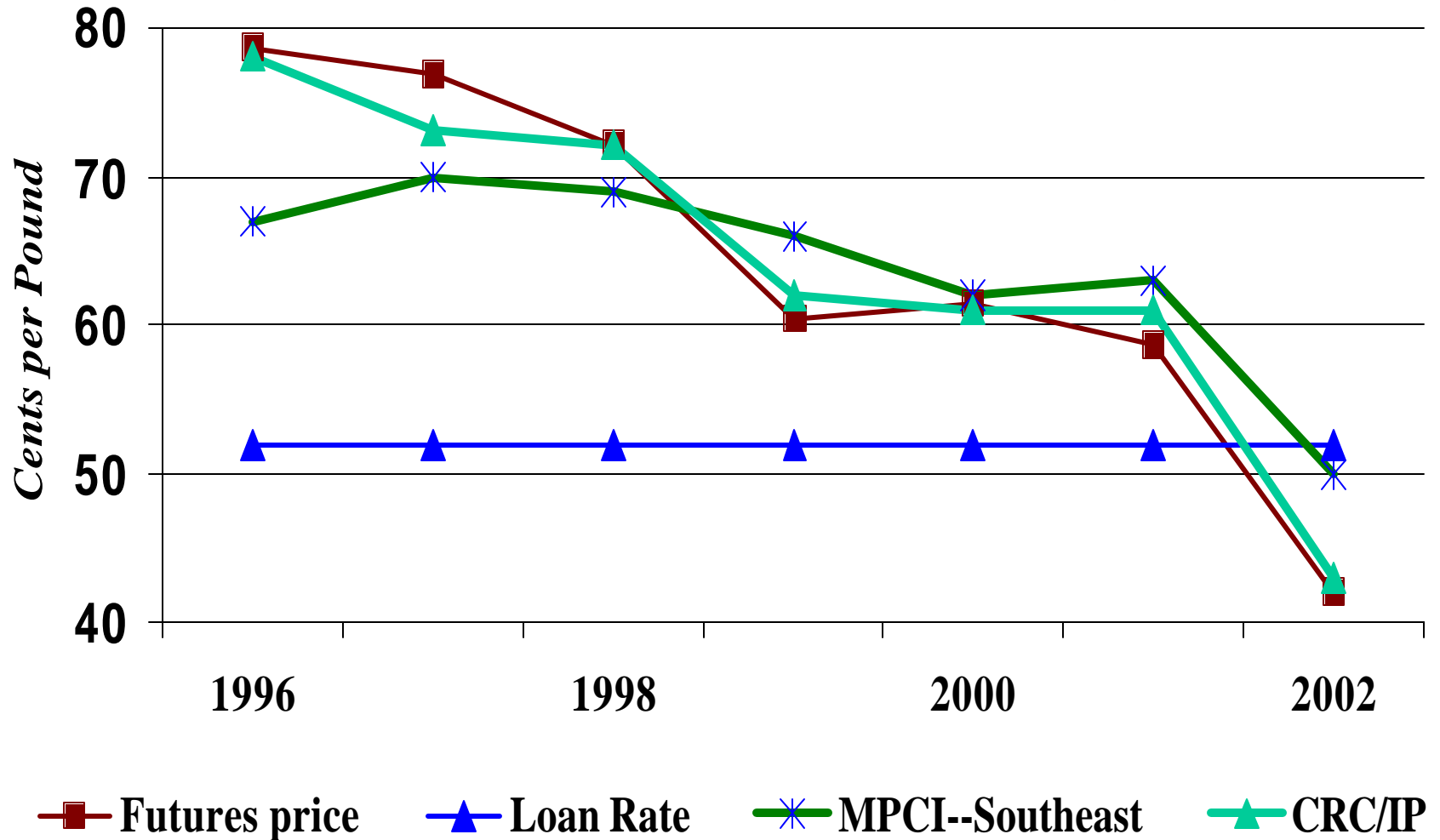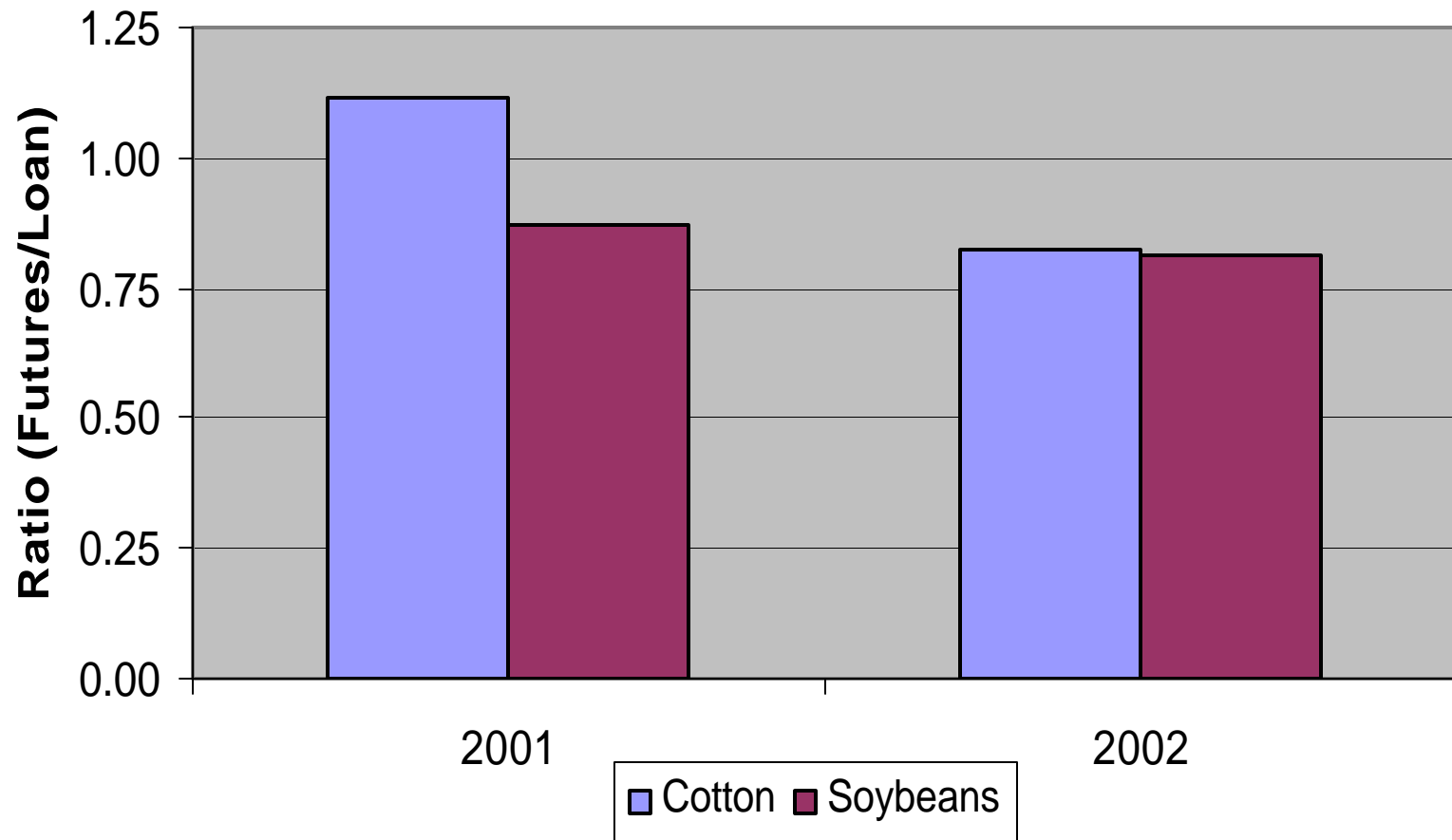
Liability

$$\text{Premium} = \frac{\text{Price}}{\text{Guarantee}} \;X\; \left[\frac{\text{Coverage}}{\text{Level}} \;X\; \frac{\text{APH}}{\text{Yield}} \right] \;X\; \frac{\text{Premium}}{\text{Rate}} \;X\; \left[1 - \frac{\text{Subsidy}}{\text{Percent}} \right]$$

Expected Return to Insurance = Expected Indemnity - Premium

Cotton Market Price and Insurance Coverage Price

February Cotton and Soybean Futures Price Relative to the Loan Rate

Factors Related to the Expected Net Benefit of Crop Insurance

- Value of the Crop/unit
- Expected yield/acre
- Insurance coverage
- Policies providing greater coverage
- Greater risk resulting in higher rates
- Greater rating error in favor of the producer
- Increased subsidy levels
- Greater producer risk aversion

Final Thoughts